

REMARKS

Claims 6633-6652 are pending in the case. Further examination and reconsideration of pending claims 6633-6652 are hereby respectfully requested.

Section 102 Rejections:

Claims 6633-6652 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,900,939 to Aspnes et al. (hereinafter "Aspnes"). Claim 6634 was rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,563,586 to Stanke et al. (hereinafter "Stanke"). As will be set forth in more detail below, the § 102 rejections of claims 6633-6652 are respectfully traversed.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), MPEP § 2131. The cited art does not disclose all limitations of the currently pending claims, some distinctive limitations of which are set forth in more detail below.

The cited art does not teach a processor coupled to a spectroscopic ellipsometer that is configured to determine a critical dimension of a specimen from one or more output signals generated by the spectroscopic ellipsometer. Independent claim 6633 recites in part: "a spectroscopic ellipsometer configured to generate one or more output signals during measurement of the specimen; and a processor coupled to the spectroscopic ellipsometer and configured to determine a critical dimension and a thin film characteristic of the specimen from the one or more output signals." Independent claim 6649 recites similar limitations.

As defined in the Specification:

A critical dimension may include a lateral dimension of a feature defined in a direction substantially parallel to an upper surface of the specimen such as width 62 of feature 56 on specimen 60. Therefore, a critical dimension may be generally defined as the lateral dimension of a feature when viewed in cross section such as a width of a gate or interconnect or a diameter of a hole or via. A critical dimension of a feature may also include a lateral dimension of a feature defined in a direction substantially perpendicular to an upper surface of the specimen such as height 64 of feature 56 on specimen 60. (Specification -- page 74, lines 17-23.)

Therefore, a "critical dimension" as defined in the Specification does not include a thickness of a film. In contrast, the Specification states that "Examples of thin film characteristics include, but are not limited to, a thickness, an index of refraction, and an extinction coefficient." (Specification -- page 250, lines 11-12.) Therefore, a film thickness is defined in the Specification as a thin film characteristic, as presently claimed.

Aspnes discloses a thin film optical measurement system and method with calibrating ellipsometer. Aspnes, however, does not disclose a processor coupled to a spectroscopic ellipsometer that is configured to determine a critical dimension of a specimen from one or more output signals generated by the spectroscopic ellipsometer. For example, Aspnes states that "To determine this information, the processor 48 takes the difference between the sums of the output signals of diametrically opposed quadrants, a value which varies linearly with film thickness for very thin films." (Aspnes -- col. 4, lines 30-34.) Therefore, Aspnes discloses a processor that is configured to determine film thickness of a specimen. However, Aspnes does not disclose a processor that is configured to determine a critical dimension of the specimen. In addition, as set forth in detail above, a critical dimension as defined in the Specification does not include a film thickness. Therefore, Aspnes does not teach determining a critical dimension as presently claimed. As such, Aspnes does not teach a processor coupled to a spectroscopic ellipsometer that is configured to determine a critical dimension of a specimen from one or more output signals generated by the spectroscopic ellipsometer, as recited in claims 6633 and 6649. Therefore, Aspnes does not teach all limitations of claims 6633 and 6649.

Stanke discloses a wafer metrology apparatus and method. Stanke, however, does not disclose a processor coupled to a spectroscopic ellipsometer that is configured to determine a critical dimension of a specimen from one or more output signals generated by the spectroscopic ellipsometer. For example, Stanke states that "Following collection of a reference spectrum a data reduction algorithm utilizing the reference spectrum is used to calculate film thickness from spectra collected from wafer 420." (Stanke -- col. 14, lines 17-20.) Therefore, Stanke discloses a processor that is configured to determine film thickness of a specimen. However, Stanke does not disclose a processor that is configured to determine a critical dimension of the specimen. In addition, as set forth in detail above, a critical dimension as defined in the Specification does not include a film thickness. Therefore, Stanke does not teach determining a critical dimension as presently claimed. As such, Stanke does not teach a processor coupled to a spectroscopic ellipsometer that is configured to determine a critical dimension of a specimen from one or more output

signals generated by the spectroscopic ellipsometer, as recited in claims 6633 and 6649. Therefore, Stanke does not teach all limitations of claims 6633 and 6649.

For at least the aforementioned reasons, claims 6633 and 6649 are not anticipated by the cited art. Therefore, claims dependent therefrom are also not anticipated by the cited art for at least the same reasons. Accordingly, removal of the § 102 rejection of claims 6633-6652 is respectfully requested.

Allowable Subject Matter:

Claim 6652 was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim. Applicant sincerely appreciates the Examiner's recognition of the patentable subject matter recited in claim 6652.

Information Disclosure Statements:

Applicants note that the Information Disclosure Statement filed on March 18, 2004, and the references cited therein, have not been considered by the Examiner. Careful consideration of the references listed on the Forms PTO 1449 of these Information Disclosure Statements and return of the signed pages are respectfully requested.

CONCLUSION

This response constitutes a complete response to all issues raised in the Office Action mailed April 23, 2004. In view of the remarks traversing rejections presented therein, Applicants assert that pending claims 6633-6652 are in condition for allowance. If the Examiner has any questions, comments, or suggestions, the undersigned earnestly requests a telephone conference.

The Commissioner is authorized to charge any required fees or credit any overpayment to Conley Rose, P.C. Deposit Account No. 03-2769/5589-02326.

Respectfully submitted,



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